

REMARKS

Amendment to the Claims

Claim 33 is amended to incorporate the limitations of claim 15, which is now canceled. Upon entry of the amendment, claims 1, 2, 17, 18 and 21-35 are presented for consideration by the Examiner.

Amendment to the Drawings

Applicant encloses a copy of Figure 3 which was apparently missing from the application as filed.

Applicant also encloses new Figure 4 illustrating the plurality of separate electrically conductive transparent front electrode segments and plurality of electroluminescent material segments recited in claims 21 and 22 respectively. Figure 4 is substantially identical to Figure 2 as filed with the application and merely duplicates the structure shown in Figure 2 to explicitly illustrate the features and relationships recited in Figures 21 and 22. No new matter is added. Entry of new Figure 4 is respectfully requested.

The amendment to the drawings and the inclusion of Figure 3 are believed to overcome any objection to the drawings properly raised by the Examiner.

Amendment to the Specification

The specification is amended to include a descriptive title as required by the Examiner, add Figure 4 to the brief description of the drawings, amend the specification to include a specific description of the features recited in claims 25-28, and to include a brief description of the disclosures of Figure 4. No new matter is added as any features illustrated in new Figure 4 or described in the specification as amended were recited in the claims as filed and Figure 2 as filed with the application.

Entry of the amendments to the specification are respectfully requested.

Claim Rejections – 35 U.S.C. § 102

Claims 1, 2, 17, 18, 22, 24, and 27-29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,757,128 to Topp (hereinafter Topp).

Topp relates to a means of preventing ghost images on an electroluminescent display caused by electrical tracks connected to the rear electrodes. This is achieved by providing a plurality of rear electrodes which are very closely spaced in order to provide a mere continuous rear or group electrode (see Topp, Figure 4 and column 6, lines 32-64). During use, when one segment of the rear electrode is not being operated to light the electroluminescent display, it is held at the same potential as the transparent front electrode. This shields the electroluminescent material from the electrical tracks which run behind the rear electrode (see Topp, column 6, lines 21-31). As the rear electrode is nearly continuous, the electrical tracks are almost entirely shielded from the electroluminescent layer. However, potential difference between the track and the front electrode will cause the electroluminescent material to light and create a ghost image (see Topp, column 7, lines 1-21). This problem is overcome in a second embodiment of Topp shown in Figure 9. Here a back electrode 122 is positioned so as to block off the lines of sight. The back electrode is held at the same potential as the front electrode and is insulated from both the rear electrode layer and the electrical tracks (see Topp, column 8, lines 34-49). According to the Examiner's rejection this back electrode 122 is equivalent to the backplane (6th layer) of claim 1.

However, the backplane of claim 1 is required to follow "substantially the path of the electrically conducting tracks". In contrast, the back electrode 122 disclosed in Topp does not follow the conducting tracks. Instead, this back electrode covers the entire region of the electroluminescent display (see Topp, Figure 18, reference number 624). There is no disclosure of shaping the back electrode such that it follows the path of the electrical tracks. Therefore, Topp does not disclose a backplane which "follows substantially the path of the electrical tracks" as recited in claim 1.

Independent claim 17 also requires an electrically conductive layer "substantially following the path of the electrical conductor". The structures and relationships recited in claims 1 and 17 are not shown in Topp, therefore, claims 1 and 17 are not anticipated by Topp.

Further, electroluminescent displays made according to the teachings of Topp illustrate rear electrodes, the back electrode and the associated intermediate insulating layers to cover the majority of the electroluminescent display, thus requiring the use of a large amount of expensive conductor ink. The electroluminescent display of the present invention is a beneficial improvement over the disclosure of Topp because the rear electrodes are not involved in the shielding of the electroluminescent layer from the tracks and the backplane is only required to follow substantially the path of the electrical tracks. **This therefore greatly reduces the amount of conductive ink needed and allows the rear electrodes to be shaped and positioned without regard to the layout of the electric tracks.**

The person of skill in the art when reading Topp would learn to deal with ghost images firstly by ensuring that any region over which a track is to cross is provided with a rear electrode. If this still results in ghost images, he would then be taught to provide a back electrode across the entire display. **The Applicant of the present invention has appreciated that the rear electrodes need not be provided across the whole area of the display and instead a simple backplane can be provided which follow the tracks.** Accordingly, the amount of conductive ink used to avoid ghost images is reduced, as neither the backplane nor the rear electrodes are required to be present over such large areas as required by Topp. There is no teaching or suggestion within Topp of reducing the amount of conductive ink needed by simply providing the back electrode in register with the electric tracks and, therefore, claims 1 and 17 are both patentable over the disclosure of Topp.

Claims 2 and 21-32 depend directly or indirectly from claim 1 and are patentable for at least the reasons stated in support of claim 1.

Claims 18, 34 and 35 depend directly or indirectly from claim 17 and are patentable for at least the reasons stated in support of claim 17.

Claims 25-28 recite particular structures and relationships for the recited backplane track elements and dielectric tracks with regard to the associated electrically-conductive tracks. The recited configurations and relationships are not disclosed, taught or suggested by Topp.

Specifically, claim 25 recites "wherein each of the backplane track elements...has substantially the same two-dimensional form as, but is wider than, its associated electrically-conductive track."

Claim 26 recites

wherein the fifth layer comprises a plurality of dielectric tracks each of which is associated with one of the electrically-conductive tracks and **each of which dielectric tracks has substantially the same two-dimensional form as, but is wider than its associated electrically-conductive track and, at a first end, stops short of the first end of its associated electrically-conductive track** and wherein **the backplane of the sixth layer comprises a plurality of electrically-conductive, backplane track-elements, wherein each of the backplane track-elements stops short of the first end of the associated dielectric track** (emphasis added)

Claim 27 recites "wherein backplane track-elements are provided substantially exclusively in areas of the display in which there exists electroluminescent material and a front electrode and an electrically-conductive track."

Claim 28 recites "wherein backplane track-elements are provided substantially exclusively outside of display areas at which the second layer is shaped in the form of the graphical element."

The disclosure and Figures of Topp illustrate a back electrode 624 substantially covering the back of the electroluminescent display 600. Topp does not disclose, teach or suggest that the back electrode 624 should have any particular relationship to the conductive tracks 632 employed to deliver power to the electroluminescent elements.

Instead, Topp discusses the importance of "a continuous group electrode footprint."
(See Topp, column 8, lines 40 through 61.)

Claims 25-28 recite particular structures and relationships (quoted above) not disclosed, taught or suggested by Topp. Claims 25-28 are additionally patentable for at least these reasons.

Claim Rejections 35 U.S.C. § 103

Claim 21 is rejected under 35 U.S.C. § 103 as being unpatentable over Topp.

Claim 21 depends from claim 1 and is patentable for at least the reasons stated in support of claim 1. Further, the Examiner admits that Topp does not explicitly disclose the "plurality of separate electrically conductive transparent front electrode segments" recited in claim 21. Claim 21 is patentable for at least these reasons.

Claims 31, and 33-35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Topp in view of U.S. Patent No. 6,116,745 to Yei (hereinafter Yei). The Examiner admits that Topp does not disclose, teach or suggest an addressable electroluminescent display on an item of clothing. The Examiner finds that Yei discloses an item of clothing including an electroluminescent display. The electroluminescent display of Yei is not addressable. In other words, the display of Yei can be made to turn on or off. This is different than an addressable display as that described in Applicant's specification and recited in claim 33. The Examiner offers no particular teaching or suggestion in either Topp or Yei that one of ordinary skill in the art should combine the teachings of those references to arrive at Applicant's invention.

Claim 33 requires "a plurality of display areas each having the shape of a graphical element and each of which may be separately selectively illuminated." There is no motivation to combine the teachings of Yei with those of Topp to arrive at Applicant's invention. The Examiner has failed to present a *prima facie* case of obviousness with respect to claim 33. Claim 33 is patentable for at least this reason.

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Further, claim 33 recites particular structures relating to the fifth and sixth layer that are not disclosed, taught or suggested in Topp or Yei as discussed above with regard to claims 1 and 17. In particular, claim 33 recites in pertinent part

a fifth layer located between the fourth layer a sixth layer, comprising dielectric material and following substantially the path of the electrically-conductive tracks; and a sixth layer located between the third and the fifth layers comprising an electrically-conductive backplane which electrically connected to the front-electrode in front of the backplane such that the potential difference across the third layer in the region of the sixth layer is substantially zero **and follows substantially the path of the electrically-conductive tracks.** (emphasis added)

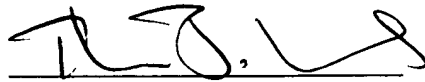
The above-identified language recited in claim 33 is not disclosed, taught or suggested by Topp or Yei, either alone or in combination.

Claims 34 and 35 are patentable for at least the reasons stated in support of claim 17.

For all the foregoing reasons, Applicant respectfully requests allowance of claims 1, 2, 17, 18, and 21-35.

Respectfully submitted,

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Amendment to the Drawings

Please add new Figure 4 illustrating the "plurality of separate electrically-conductive, transparent front-electrode segments" and "plurality of electroluminescent material segments" recited in claims 21 and 22, respectively. Figure 4 is substantially identical to Figure 2 as filed with the application and merely duplicates the structures shown in Figure 2 to explicitly illustrate the features recited in claims 21 and 22. No new matter is added. Entry of new Figure 4 is respectfully requested.

The amendment to the Drawings is believed to overcome any objection to the drawings properly raised by the Examiner.

A copy of Figure 3 is also enclosed.